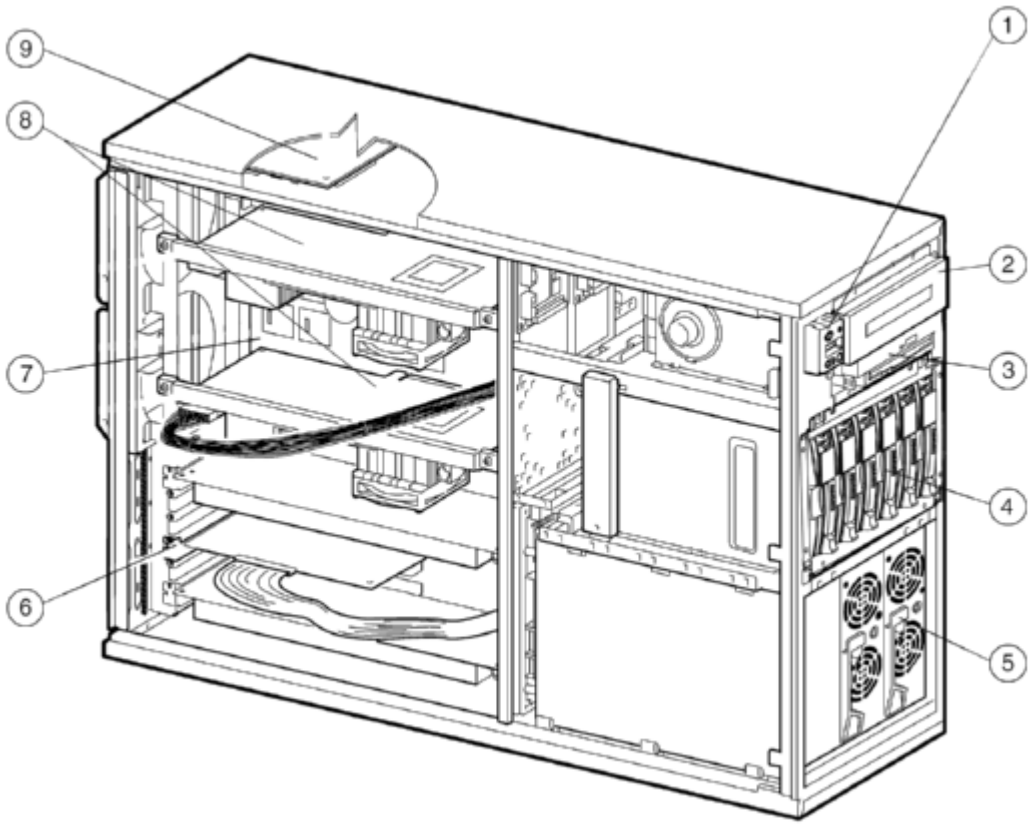
Compaq AlphaServer DS20E
Compaq AlphaStation DS20E



1. Operator Control Panel
2. Removable media bay
3. Combination CD-ROM/floppy drive
4. Hard disk drive cage
5. Power Supplies
6. Ultra2/Ultra3 SCSI adapter
7. System motherboard
8. CPU modules
9. Server Management Module

At A Glance

AlphaServer/AlphaStation DS20E Systems include:

- Alpha 21264 667-MHz or 833-MHz processor (dual processor capability)
- 8-MB level DDR cache per processor
- ECC-protected memory bus and cache
- 512-MB or 1-GB SDRAM memory expandable to 4 GB
- Five PCI and one shared PCI/ISA slot (six total slots)
- Six hot swap hard disk drive bays
- Internal mass storage capacity up to 876 GB
- Integrated environmental server management module
- Two 375-Watt hot pluggable power supplies with optional third for N+1 redundancy
- Combo 24X CD-ROM drive and 1.44-MB floppy disk drive
- Protected by HP Services, including a three-year on-site limited warranty

Standard Features

Processor	Alpha 21264 667-MHz or 833-MHz processor	
Cache Memory	8-MB level 2 dual data rate cache per processor	
Upgradability	System upgradable to dual processing	
Memory	Minimum	512-MB or 1-GB ECC SDRAM memory standard
	Maximum	4 GB
Network Controller	Choice of Ethernet controllers	
Expansion	I/O (Total)	6
	PCI	5
	Shared PCI/ISA	1
Storage Controller	Choice of storage controllers	
Storage	Diskette Drive	1.44 MB
	CD-ROM	24X Max IDE CD-ROM Drive
	Internal Hard Drives	Choice of 18.2-GB, 36.4-GB, 72.8-GB, or 146-GB drives
	Maximum Internal Storage	876 GB
Interfaces	Parallel	1
	Serial	2
	Pointing Device (Mouse)	1
	Keyboard	1
	SCSI knockouts on rear of chassis	6
	Parallel	1
Form Factor	Rackmount or Tower	
Manageability	Insight Manager	
Power Supply	Two 375-Watt hot plug power supplies, standard; optional third N+1 for redundancy	
	Hot plug redundant power supply support; hot plug fan support	

Standard Features

OS Support	AlphaServer DS20E Tru64 UNIX systems include pre-installed software (V5.1B), Base license, Unlimited User license, Server Extension license, Internet Express, and Secure Web Server AlphaStation DS20E Tru64 UNIX systems include pre-installed software (V5.1B), 2-user Base license AlphaServer DS20E OpenVMS systems include pre-installed software (V7.3-1), Base license with System Manager license, and Enterprise Integration Server License Package for OpenVMS V3.1 AlphaStation DS20E OpenVMS systems include pre-installed software (V7.3-1), Base license, Concurrent Use 1-user license, and NAS 150 Client license Minimum OS support: Tru64 UNIX V4.0F, OpenVMS V7.1-2 or V7.2-1
Service and Support	HP Services provides a wide range of service offerings including a three-year limited warranty fully supported by a worldwide network of resellers and service providers; lifetime toll-free 7 x 24 hardware technical phone support.

Step 1 – Select system

AlphaServer/AlphaStation DS20E systems require the **mandatory** selection of the following items:

- Pedestal/tower or rackmount bezel kit
- Disk drive cage
- LVD SCSI adapter
- System disk drive
- Ethernet adapter
- Power cord
- Software media and documentation for first system onsite

NOTES: DS20E minimum OS support - Tru64 UNIX V4.0F, OpenVMS V7.1-2 or V7.2-1
Keyboard and mouse not included.

AlphaServer DS20E Systems			
OS	**CPU**	**Memory/Cache**	**Order Number**
Tru64 UNIX	667 MHz	512 MB/8 MB	DA-56PAB-EA
Tru64 UNIX	667 MHz	1 GB/8 MB	DA-56PAB-FA
Tru64 UNIX	833 MHz	512 MB/8 MB	DA-56RAA-EA
Tru64 UNIX	833 MHz	1 GB/8 MB	DA-56RAA-FA
OpenVMS	667 MHz	512 MB/8 MB	DY-56PAB-EA
OpenVMS	667 MHz	1 GB/8 MB	DY-56PAB-FA
OpenVMS	833 MHz	512 MB/8 MB	DY-56RAA-EA
OpenVMS	833 MHz	1 GB/8 MB	DY-56RAA-FA
AlphaStation DS20E Systems			
Tru64 UNIX	667 MHz	512 MB/8 MB	DA-56PAB-EW
Tru64 UNIX	667 MHz	1 GB/8 MB	DA-56PAB-FW
Tru64 UNIX	833 MHz	512 MB/8 MB	DA-56RAA-EW
Tru64 UNIX	833 MHz	1 GB/8 MB	DA-56RAA-FW
OpenVMS	667 MHz	512 MB/8 MB	DY-56PAB-EW
OpenVMS	667 MHz	1 GB/8 MB	DY-56PAB-FW
OpenVMS	833 MHz	512 MB/8 MB	DY-56RAA-EW
OpenVMS	833 MHz	1 GB/8 MB	DY-56RAA-FW

Step 2 – Select Mandatory Options

Step 2a - Bezel Kits - Mandatory

- Pedestal/Tower kit or Rackmount kit is mandatory for each system

Pedestal/Tower bezel kit	3X-BA56P-PB
Rackmount bezel kit (M-Series Cabinets)	3X-BA56R-RC
Rackmount bezel kit for 9000 Series Cabinets (Onsite integration only – contact CustomSystems if factory integration is required)	3X-BA56R-RE

Step 2b - Disk Drive Cage - Mandatory

- Systems support one disk drive cage; disk drive cage supports six 3.5-inch hard disk drives

6-bay disk drive cage	BA610-6D

Step 2c - SCSI Adapter - Mandatory

- Selection of LVD SCSI adapter to connect to internal disk drive cage is mandatory; SCSI cable included with disk-drive cage

Single-channel LVD adapter, maximum four per system	3X-KZPCA-AA
PCI 2-channel multimode Ultra3 LVD SCSI adapter VHDCI (Tru64 UNIX 5.1 or higher and OpenVMS V7.2-2 or higher)	3X-KZPEA-DB

NOTES:

- Patch kit required, kit available at http://ftp1.support.compaq.com/public/Digital_UNIX/v5.1/
- No shared bus support with OpenVMS. No shared tape/library support with OpenVMS or Tru64 UNIX. 3X-KZPEA-DB adapter supports shared bus using hard disk drives under Tru64 UNIX V5.1A with Patch Kit 4 or V5.1B with Patch Kit 1 and TruCluster V5.1A; supports maximum of two nodes per shared bus, requires 3X-BN55A-01 Y-cable and connector plug assembly and 3X-H32CT-AA external LVD terminator per shared bus.
- Refer to 3X-KZPEA-DB QuickSpecs for complete list of restrictions.

PCI-to-10/100 MBPS Ethernet, graphics, LVD SCSI combination adapter, maximum one per system (cannot be installed in PCI slot 1)	3X-DEPVZ-AA
PCI 1-channel Ultra2 LVD backplane RAID controller, 64-bit, 16-MB cache	DS-KZPCC-AC

NOTES:

- Supported with BA610-6D, BA356, and DS-SL13R-xx or DS-SSL14-RX shelves only. When installed in BA356 shelves, part number DS-BA35X-FC is required for non-factory installations.
- Graphics card is required to run the DS-KZPCC-AC console utilities (SMOR) with SRM console versions lower than V6.0 or, alternatively can be run via serial line and terminal emulation software for SRM V6.0 or higher. PB2GA-JC/JD graphics cards are not supported.
- EV6 systems not supported.
- Supported in platform part numbers: DA-56PAB-EA/FA/EW/FW and DA-56RAA-EA/FA/EW/FW.
- Specific patches are required for specific versions of the operating system.

See
DS-KZPCC-AC/CE QuickSpecs for latest details and other configuration information.
Tru64 UNIX V4.0F requires NHD3 and Patch Kit 4 (BL15) or later
Tru64 UNIX V5.1 requires Patch Kit 3 (BL17) and Early Release Patch C462
Patch Kit 3 (BL17) is located at:
T64V5117-C0046202-11060-Manual-ER-20010615.tar
Patch C462.02 is located at:
http://ftp1.support.compaq.com/public/unix/v5.1/

- DS-KZPCC-AC/CE RAID controllers support standalone and cluster configurations; no support as boot device or primary device in cluster configurations; TruCluster V5.1 (restricted to non-shared buses only)

PCI 3-channel Ultra2 LVD RAID controller, 64-bit, 64-MB cache — DS-KZPCC-CE

NOTES:

- Supported with BA610-6D, BA356 and DS-SL13R-xx or DS-SSL14-RX shelves only. When installed in BA356 shelves, part number DS-BA35X-FC is required for non-factory installations.
- Graphics card is required to run the DS-KZPCC-AC console utilities (SMOR) with SRM console versions lower than V6.0 or, alternatively can be run via serial line and terminal emulation software for SRM V6.0 or higher. PB2GA-JC/JD graphics cards are not supported.
- EV6 systems not supported.
- Supported in platform part numbers: DA-56PAB-EA/FA/EW/FW and DA-56RAA-EA/FA/EW/FW.
- Specific patches are required for specific versions of the operating system. See
  DS-KZPCC-AC/CE QuickSpecs for latest details and other configuration information. Tru64 UNIX V4.0F requires NHD3 and Patch Kit 4 (BL15) or later.
  Tru64 UNIX V5.1 requires Patch Kit 3 (BL17) and Early Release Patch C462.
  Patch Kit 3 (BL17) is located at:
  T64V5117-C0046202-11060-Manual-ER-20010615.tar
  Patch C462.02 is located at:
  http://ftp1.support.compaq.com/public/unix/v5.1/
- DS-KZPCC-AC/CE RAID controllers support standalone and cluster configurations; no support as boot device or primary device in cluster configurations; TruCluster V5.1 (restricted to non-shared buses only)

PCI 2-channel Ultra160 SCSI backplane RAID controller with 128-MB cache requires use of Ultra160 SCSI cables (uses one PCI slot); requires connection to BA610-6D disk card cage or DS-SL13R-xx Universal StorageWorks shelf. — 3X-KZPDC-BE

NOTES:

- Restricted to Hose One slot (furthest away from memory)
- Supported in platform part numbers: DY-56PAB-EA/FA/EW/FW and DY-56RAA-EA/FA/EW/FW.
- Host based volume shadowing or shared bus not supported.
- Tru64 UNIX support: TruCluster support is restricted to non-shared buses only.
- Requires V5.1B with Initial Patch Kit located at:
  http://ftp1.support.compaq.com/public/unix/v5.1b/
- Tru64 UNIX V5.1A support requires Patch Kit located at:

http://ftp1.support.compaq.com/public/unix/v5.1a/

PCI 4-channel Ultra160 SCSI backplane RAID controller, 256-MB cache, ADG Standard, requires use of Ultra160 SCSI cables (uses one PCI slot); requires connection to BA610-6D disk card cage or DS-SL13R-xx Universal StorageWorks shelf	3X-KZPDC-DF

NOTES:

- Restricted to Hose One slot (furthest away from memory).
- Supported in platform part numbers: DY-56PAB-EA/FA/EW/FW and DY-56RAA-EA/FA/EW/FW.
- Host based volume shadowing or shared bus not supported.
- Tru64 UNIX support: TruCluster support is restricted to non-shared buses only.
- Requires V5.1B with Initial Patch Kit located at: http://ftp1.support.compaq.com/public/unix/v5.1b/
- Tru64 UNIX V5.1A support requires Patch Kit located at: http://ftp1.support.compaq.com/public/unix/v5.1a/

Step 2d - System Disk Drive (Supported in Disk Drive Cage) - Mandatory

- Selection of one disk drive is mandatory

18.2-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3848-AA
36.4-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3838-AA
36.4-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3849-AA
72.8-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3839-AA
72.8-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3851-AA
146-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3841-AA
Ultra Universal drive height converter, 4-pack; required for installed base customers with earlier 4-slot drive cages (3X-BA611-4D) when ordering 1-inch Universal drives	3R-A0528-AA

Step 2e - Ethernet Adapters - Mandatory

- Selection of one Ethernet adapter is mandatory (Ethernet adapter is not required if KZPCM or 3X-DEPVZ-AA adapter is selected)
- See Step 14 for additional networking options

Single-port 100 Mbps (MMF/duplex-SC) add-on daughter card for use with the 3X-DE602-BB. The combined 3X-DE602-BB and 3X-DE602-FA provides two 10/100 (UTP/RJ45s) and one 100Mbps (MMF/SC) ports in a single PCI slot option. Maximum two per system, maximum eight 10/100 Ethernet ports per system. **NOTE:** 3X-DE602-FA **cannot** be used standalone. Use BN34A or BN34B cables.	3X-DE602-FA
PCI (32/64-bit, 33-MHz to 66-MHz) dual-port 10/100 Ethernet (UTP/RJ45s) NIC and Base Module. (One 3X-DE602-TA or 3X-DE602-FA optional add-on daughter card can be combined with this module.) Maximum two per system, maximum eight 10/100 Ethernet ports per system. Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	3X-DE602-BB

	Dual-port 10/100 Ethernet (UTP/RJ45) add-on daughter card for use with the 3X-DE602-BB only. The combined 3X-DE602-BB and 3X-DE602-TA modules provide four 10/100 (UTP/RJ45s) ports in a single PCI slot option; allows for a maximum of 16 ports per system. Maximum two per system, maximum eight 10/100 Ethernet ports per system. **NOTES**: 3X-DE602-TA **cannot** be used standalone. OpenVMS V7.3 requires Tima Kit: DEC-AXPVMS-VMS73_LAN-V0100—4.PCSI Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	3X-DE602-TA
	Cable for 10BaseT twisted pair connection	BN25G-xx

Step 2f - Power Cords - Mandatory

- Selection of one power cord is mandatory for all systems.

Pedestal Power Cords	North America, 120V, 75-inch	BN26J-1K
	North America, 200 to 240V, 75-inch	BN18J-1K
	Australia, New Zealand, 2.5-meter (103541-511)	BN19H-2E
	Central Europe, 2.5-meter	BN19C-2E
	Denmark, 2.5-meter (103541-481)	BN19K-2E
	Egypt, India, South Africa, 2.5-meter (103541-AR1)	BN19S-2E
	Israel, 2.5-meter	BN18L-2E
	Italy, 2.5-meter (103541-461)	BN19M-2E
	Japan, 2.5-meter	3X-BN46F-02
	Switzerland, 2.5-meter (103541-511)	BN19E-2E
	UK, Ireland, 2.5-meter	BN19A-2E
Rackmount Power Cords	U.S./Canada	BN20Z-4E
	Non-U.S.	BN35S-4E
	Japan, 2.5-meter	3X-BN46D-4E

Step 3 - Additional CPU Modules - Optional

- One 6/667-MHz or 6/833-MHz CPU included, one additional CPU supported, second CPU must be the same speed.

SMP upgrade includes one 6/667-MHz CPU with 8-MB cache and Tru64 UNIX SMP license	KN311-CB
SMP upgrade includes one 6/667-MHz CPU with 8-MB cache and OpenVMS SMP license	KN311-CC
SMP upgrade includes one 6/833-MHz CPU with 8-MB cache and Tru64 UNIX SMP license	KN312-BB
SMP upgrade includes one 6/833-MHz CPU with 8-MB cache and OpenVMS SMP license	KN312-BC

Step 4 - Memory - Optional

- System includes one memory option; up to three additional memory options can be added

512-MB memory option (4 x 128-MB DIMMs)	MS340-DA
1-GB memory option (4 x 256-MB DIMMs)	MS340-EA

Step 5 - Additional Power Supplies - Optional

- Two 375 watt power supplies included with system; optional third power supply provides N+1 redundancy

DS20E redundant power supply	FR-H7910-AA

Step 6 - Internal Removable Storage - Optional

- System supports three internal removable media devices:
- One combo 24X CD-ROM drive and 1.44-MB disk drive
- One additional removable media slot provides support for one 5.25-inch half-height device; requires SCSI adapter and SCSI cable 3X-BC56C-2F
- For optimum performance it is recommended that Ultra2 capable devices be connected to at least one Ultra2 capable adapter.

DAT 12/24-GB 4 mm SCSI tape drive (TLZ10) 5.25-inch half-height, top gun blue; requires single-ended UltraSCSI or Ultra2 adapter (3X-DEPVZ-AA, 3X-KZPCA-AA, 3X-KZPEA-DB, or KZPCM-DA)	TLZ10-LB
DAT 5.25-inch half-height 20/40-GB 4 mm Ultra2 (LVD) SCSI tape drive, top gun blue; requires Ultra2/Ultra3 (LVD) adapter (3X-KZPCA-AA, 3X-DEPVZ-AA, or 3X-KZPEA-DB)	3X-SD20X-LB
DAT 40-GB LVD internal tape drive (Q1553A)	3R-A4752-AA

DAT 36/72-GB 4-mm 5.25-inch half-height LVD SCSI tape drive, carbon black; (Q1525A)	3R-A4544-AA
AIT 5.25-inch half-height 35/70-GB 8 mm Wide UltraSCSI tape drive, top gun blue; requires single-ended UltraSCSI adapter or Ultra2/Ultra3 adapter (KZPBA-CA, 3X-DEPVZ-AA, KZPCM-DA, 3X-KZPCA-AA, or 3X-KZPEA-DB)	3X-SZ35X-LB
AIT 5.25-inch half-height 50/100-GB 8 mm Ultra2 (LVD) SCSI tape drive, top gun blue; requires Ultra2/Ultra3 (LVD) adapter (3X-KZPCA-AA, 3X-DEPVZ-AA, or 3X-KZPEA-DB)	3X-SZ50X-LB
AIT 5.25-inch half-height 35/70-GB 8 mm LVD UltraSCSI tape drive, carbon black; requires Ultra2/Ultra3 (LVD) adapter (3X-KZPCA-AA, 3X-DEPVZ-AA, or 3X-KZPEA-DB) and SCSI cable	3R-A2392-AA
AIT 5.25-inch half-height 100/200-GB 8-mm Ultra3 SCSI tape drive, carbon black; requires Ultra2/Ultra3 (LVD) adapter (3X-KZPCA-AA, 3X-DEPVZ-AA, or 3X-KZPEA-DB)	3R-A3623-AA
AIT 35/70-GB hot-plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves, requires 3X-KZPCA-AA, 3X-DEPVZ-AA LVD, or 3X-KZPEA-DB adapter	3R-A2396-AA
AIT 50/100-GB hot plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves, requires 3X-KZPCA-AA, 3X-DEPVZ-AA LVD, or 3X-KZPEA-DB adapter	3R-A2779-AA
AIT 100/200-GB hot plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves; requires 3X-DEPVZ-AA, 3X-KZPEA-DB, or 3X-KZPCA-AA adapter	3R-A3621-AA
DAT 20/40-GB DDS4 hot plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves, requires 3X-KZPCA-AA LVD, or 3X-KZPEA-DB adapter	3R-A2780-AA
SCSI cable with one connector and active terminator to connect optional PCI adapter to 5.25-inch device	3X-BC56C-2F

Step 7 - External Storage - Optional

StorageWorks Model 4314R and Model 4354R Universal Drive Shelves

- StorageWorks Model 4314R and 4354R Ultra3 SCSI (LVD) single-bus and split-bus Universal drive shelves; refer to StorageWorks Enclosure 4300 Family QuickSpecs when configuring shelves. When selecting a DS-SL13R-xx split-bus shelf, order two 3X-KZPCA-AA adapters with BN38C-xx cables, or one 3X-KZPEA-DB with BN37A-xx cables. Model 43xx shelves are compatible with Wide Ultra2 or Ultra3 (LVD) adapters only. Note that the depth of a DS-SL13R-xx shelf does not allow front and rear mounting. 3X-KZPEA-DB adapter does not support shared tapes/libraries

StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf for North America and International use, except Japan (190209-001)	DS-SL13R-AA
StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf, Japan (190209-291)	DS-SL13R-AJ
StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf for North America and International use, except Japan (190211-001)	DS-SL13R-BA
StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf, Japan (190211-291)	DS-SL13R-BJ

StorageWorks Model 4314T Standalone Enclosure for Universal Drives	Model 4314T Ultra3 SCSI, single-bus tower enclosure, U.S. (190210-001)	DS-SL13T-AA
	Model 4314T Ultra3 SCSI, single-bus tower enclosure, International (190210-B31)	DS-SL13T-AB
	Model 4314T Ultra3 SCSI, single-bus tower enclosure, Japan (190210-291)	DS-SL13T-AJ
StorageWorks Model 4314 Options	StorageWorks enclosure redundant power supply (119826-B21)	DS-SE2UP-AA

Step 8 - Storage Devices - Optional

Disk Drives (Supported in Model 4314R, Model 4354R, or Model 4314T Universal Drive Shelves)	18.2-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3848-AA
	36.4-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3838-AA
	36.4-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3849-AA
	72.8-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3839-AA
	72.8-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3851-AA
	146-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3841-AA
AIT Tape Drives (Internal)	AIT 5.25-inch half-height 35/70-GB 8-mm Wide UltraSCSI tape drive, top gun blue; requires single ended UltraSCSI adapter or Ultra2 adapter (3X-DEPVZ-AA, KZPCM-DA, or 3X-KZPCA-AA) and SCSI cable (3X-BC56C-2F)	3X-SZ35X-LB
	AIT 5.25-inch half-height 50/100-GB 8-mm Ultra2 (LVD) SCSI tape drive, top gun blue; requires Ultra2 (LVD) adapter and SCSI cable (3X-BC56C-2F)	3X-SZ50X-LB
AIT Tabletop Tape Drives	AIT 35/70-GB 8-mm LVD tabletop tape drive, North America carbon black; requires LVD adapter	216885-001
	Same as above, International	216885-B31
	Same as above, Japan	216885-291
	AIT 50/100-GB 8-mm SCSI tabletop tape drive with 120V North America power cord, carbon black; requires Ultra2 (LVD) adapter	157767-002
	Same as above, International	157767-B32
	Same as above, Japan	157767-292
	AIT 100/200-GB 8-mm SCSI tabletop tape drive with 120V North America power cord	249160-001
	Same as above, International	249160-B31

Options

AIT Hot-plug Tape Drives	• AIT hot-plug tape drives require two Universal slots	
	AIT 35/70-GB hot-plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves	3R-A2396-AA
	AIT 50/100-GB hot-plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves	3R-A2779-AA
	AIT 100/200-GB hot plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves; supported with 3X-DEPVZ-AA, 3X-KZPEA-DB, and 3X-KZPCA-AA adapters	3R-A3621-AA
AIT Autoloaders	AIT 35-GB tabletop autoloader, 8 cartridge, U.S.	292355-001
	Same as above, International	292355-B31
	AIT 35-GB rackmount autoloader, 8 cartridge, U.S.	280349-001
	Same as above, International	280349-B31
	AIT Rail kit for rackmount autoloader	284930-001
AIT Tape Libraries	SSL2020 AIT tabletop library with one AIT 50-GB drive and 20 slots, LVD	175195-B21
	SSL2020 AIT tabletop library with two AIT 50-GB drives and 20 slots, LVD	175195-B22
	SSL2020 AIT rackmount library with one AIT 50-GB drive and 20 slots, LVD	175196-B21
	SSL2020 AIT rackmount library with two AIT 50-GB drives and 20 slots, LVD	175196-B22
DAT Tape Drives (Internal)	DAT 12/24-GB 4-mm 5.25-inch half-height SCSI tape drive, top gun blue; requires single-ended UltraSCSI or Ultra2 adapter (KZPBA-CA, 3X-DEPVZ-AA, 3X-KZPCA-AA, 3X-KZPEA-DB, or KZPCM-DA) and SCSI cable (3X-BC56C-2F)	TLZ10-LB
	DAT 20/40-GB 4-mm 5.25-inch half-height Ultra2 (LVD) SCSI tape drive, top gun blue; requires Ultra2 (LVD) adapter and SCSI cable (3X-BC56C-2F)	3X-SD20X-LB
	DAT 36/72-GB 4-mm 5.25-inch half-height LVD SCSI tape drive, carbon black; (Q1525A); OpenVMS only	3R-A4544-AA
DAT Tabletop Tape Drives	DAT 20/40-GB 4-mm Wide Ultra2 (LVD) tabletop SCSI tape drive with 120V North America power cord, carbon black; requires Ultra2 (LVD) adapter	157770-002
	Same as above, International	157770-B32
	Same as above, Japan	157770-292
	DAT 40-GB LVD tabletop tape drive with North America power cord (Q1554A)	3R-A4753-AA
	Same as above, International (Q1555A)	3R-A4754-AA
	DAT 36/72-GB LVD tabletop SSI tape drive with 120V North America power cord, carbon black (Q1527A)	3R-A4545-AA
	Same as above, International (Q1528A)	3R-A4546-AA

Options

DAT Hot-plug Tape Drive	DAT 20/40-GB DDS4 hot-plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves	3R-A2780-AA
	DAT 40-GB hot-plug LVD tape drive (Q1546A)	3R-A4745-AA
	DAT 36/72-GB hot-plug LVD Universal tape drive, carbon black; uses two slots in BA610-6D or 43xxx storage shelves	3R-A4547-AA
DAT Autoloaders	DAT 20/40-GB auto loader external; requires BN31W-xx SCSI cable and 3X-KZPCA-AA, or 3X-DEPVZ-AA adapter, North America	166505-001
	Same as above, International	166505-B31
	Same as above, Japan	166505-291
DLT/SDLT Tabletop Tape Drives	**NOTE:** 3X-KZPEA-DB does not support shared tapes/libraries.	
	DLT8000 tabletop 40/80-GB DLT external tape drive, carbon black - requires 3X-KZPCA-AA LVD adapter - U.S.	146197-B23
	Same as above – Japan	146197-293
	SDLT tabletop 110/220-GB external tape drive, carbon black- requires 3X-KZPCA-AA or 3X-KZPEA-DB LVD adapter - U.S.	192103-002
	Same as above – International	192103-B32
	Same as above – Japan	192103-293
	SDLT tabletop 160/320-GB external tape drive, carbon black - requires 3X-KZPCA-AA or 3X-KZPEA-DB LVD adapter - U.S.	257319-001
	Same as above - International	257319-B31
	Same as above - Japan	257319-291
Ultrium Tabletop Tape Drives	Ultrium 460 tabletop tape drive, four per system, two per SCSI bus, U.S. Supported with 3X-KZPEA-xx, KZPCA-xx, and DEPVZ SCSI adapters only. Ultrium 460 tape drives are cluster friendly devices, but cannot be shared by cluster members. Tru64 UNIX V5.1A, requires Patch Kit 4: T64V51AB21AS0004-20030206.tar Tru64 UNIX V5.1B, requires Patch Kit 1: T64v51bb03as0001-20021229.tar	Q1519A
	Ultrium 460 tabletop tape drive, same as above, International	Q1520A
DLT/SDLT Tape Libraries	**NOTE:** 3X-KZPEA-DB does not support shared tapes/libraries.	
	Rackmount kit for H9Axx M-Series cabinets – required for mounting MSL5000 series in M-Series cabinets	254795-001
	MSL5026DLX, DLT tabletop library with one 40/80-GB DLT tape drive, LVD	231821-B21
	MSL5026DLX, DLT tabletop library with two 40/80-GB DLT tape drives, LVD	231821-B22
	MSL5026DLX or MSL5026SL, DLT/SDLT rackmount library, 0 drives – requires rackmount kit (254795-001)	231979-B21
	MSL5026DLX, DLT rackmount library with one 40/80-GB DLT tape drive, LVD – requires rackmount kit (254795-001)	231891-B21
	MSL5026DLX, DLT rackmount library with two 40/80-GB DLT tape drives, LVD – requires rackmount kit (254795-001)	231891-B22

MSL5026SL, SDLT tabletop library with one 110/220-GB SDLT tape drive, LVD	231822-B21
MSL5026SL, SDLT tabletop library with two 110/220-GB SDLT tape drives, LVD	231822-B22
MSL5026SL, SDLT rackmount library with one 110/220-GB SDLT tape drive, LVD – requires rackmount kit (254795-001)	231892-B21
MSL5026SL, SDLT rackmount library with two 110/220-GB SDLT tape drives, LVD – requires rackmount kit (254795-001)	231892-B22
MSL5026SL, SDLT tabletop library with one 110/220-GB SDLT tape drive, LVD (Graphite)	302511-B21
MSL5026SL, SDLT tabletop library with two 110/220-GB SDLT tape drives, LVD (Graphite)	302511-B22
MSL5026SL, SDLT rackmount library with one 110/220-GB SDLT tape drive, LVD (Graphite)	302512-B21
MSL5026SL, SDLT rackmount library with two 110/220-GB SDLT tape drives, LVD (Graphite)	302512-B22
MSL5026S2, SDLT2 tabletop library with one 160/320-GB SDLT tape drive, LVD	293473-B21
MSL5026S2, SDLT2 tabletop library with two 160/320-GB SDLT tape drives, LVD	293473-B22
MSL5026S2 SDLT rackmount library, 0 drives, LVD – requires rackmount kit (254795-001)	293472-B21
MSL5026S2, SDLT2 rackmount library with one 160/320-GB SDLT tape drive, LVD	293472-B22
MSL5026S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive, LVD	293472-B23
MSL5026S2, SDLT2 rackmount library with one 160/320-GB SDLT tape drive with Fibre Channel, LVD	293472-B24
MSL5026S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive with Fibre Channel, LVD	293472-B25
MSL5052, 0 drives, LVD, rackmount	255102-B21
MSL5052SL SDLT tabletop library with two 110/220-GB drives, LVD	249490-B21
MSL5052SL SDLT rackmount library with two 110/220-GB drives, LVD – requires rackmount kit (254795-001)	249491-B21
MSL5052SL SDLT 110/220-GB drive field upgrade, LVD	231823-B22
MSL5052S2, SDLT2 tabletop library with two 160/320-GB SDLT tape drives, LVD, graphite	293476-B21
MSL5052S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive, LVD	293474-B21
MSL5052S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive with Fibre Channel, LVD	293474-B24

NOTE: The following options are supported with 3X-KZPCA-AA or 3X-KZPEA-DB LVD adapters.

MSL6000 with LTO Gen2 Tape Libraries	
MSL6000 LTO Gen2 add-on drive	330729-B21
MSL6030 with 0 drives, LTO, LVDS, rackmount	330731-B21

MSL6030 with one drive, LTO2, LVDS, rackmount	330731-B22
MSL6030 with two drives, LTO2, LVDS, rackmount	330731-B23
MSL6030 with one drive, LTO2, Fibre, rackmount	330731-B24
MSL6030 with two drives, LTO2, Fibre, rackmount	330731-B25
MSL6030 with one drive, LTO2, LVDS, tabletop	330788-B21
MSL6030 with two drives, LTO2, LVDS, tabletop	330788-B22
MSL6060 with 0 drives, LTO, LVDS, rackmount	331196-B23
MSL6060 with two drives, LTO2, LVDS, rackmount	331196-B21
MSL6060 with two drives, LTO2, Fibre, rackmount	331196-B22
MSL6060 with two drives, LTO2, LVDS, tabletop	331195-B21
ESL9322S2 SDLT2 tape library, two 160/320GB SDLT tape drives, 222 slots - requires 3X-KZPCA-AA adapter	293409-B22
ESL9322S2 SDLT2 tape library, eight 160/320GB SDLT tape drives, 222 slots - requires 3X-KZPCA-AA adapter	293409-B28
ESL9322S2 SDLT2 tape library, two 160/320GB SDLT tape drives, 322 slots - requires 3X-KZPCA-AA adapter	293410-B22
ESL9322S2 SDLT2 tape library, eight 160/320GB SDLT tape drives, 322 slots - requires 3X-KZPCA-AA adapter	293410-B28
ESL9326SL SDLT tape library with six 110/220-GB SDLT tape drives, LVD	234615-B21
ESL9326SL SDLT tape library with eight 110/220-GB SDLT tape drives, LVD	234615-B22
ESL9326SL SDLT tape library with 16 110/220-GB SDLT tape drives, LVD	234615-B26
NOTE: The following options are supported with 3X-KZPCA-AA or 3X-KZPEA-DB LVD adapters.	
ESL9000 with LTO Gen2 Tape Libraries	
ESL 9322 library with 0 drives	330832-B21
ESL 9595 library with 0 drives	330833-B21
ESL 9000 Ultrium 460 drive upgrade kit	330834-B21
ESL 9000 SDLT 110 drive upgrade kit	330837-B21
ESL 9322 222 to 322 slot upgrade kit	330840-B21
ESL 9000 5-MB memory module	330841-B21
ESL 9595 400 to 500 slot upgrade kit	330842-B21
ESL 9595 500 to 595 slot upgrade kit	330842-B22
ESL 9595 400 to 595 slot upgrade kit	330842-B23

Options

3U Rackmount Tape Drive Enclosure	3U LVD Rackmount Tape Drive Enclosure for use in H9Axx M-Series Cabinets, 0 drives, carbon black,	274338-B21
	Rackmount Kit for H9Axx Series Cabinets, carbon black – required for mounting 3U Rackmount Tape Drive Enclosure in M-Series cabinet	3R-A3804-AA
	NOTE: The 3U Tape Drive Enclosure supports up to four internal half-height removable devices, or up to two full height devices. Select up to four AIT or DAT devices, or two DLT/SDLT devices with 3U Rackmount Tape Drive Enclosure (274338-B21), or select preconfigured configurations listed below.	
	AIT 35/70-GB 3U tape drive, requires 3X-KZPCA-AA LVD adapter, carbon black	216884-B21
	AIT 50/100-GB 3U tape drive, requires 3X-KZPCA-AA LVD adapter, carbon black (157766-B22)	3R-A3753-AA
	DAT 20/40-GB 3U tape drive, requires 3X-KZPCA-AA LVD adapter, carbon black (157769-B22)	3R-A3752-AA
	DLT8000 40/80-GB tape drive, requires 3X-KZPCA-AA LVD adapter	146196-B22
	SDLT 110/220-GB tape drive, requires 3X-KZPCA-AA or 3X-KZPEA-DB LVD adapter	192106-B25
	SDLT 160/320-GB tape drive, requires 3X-KZPCA-AA or 3X-KZPEA-DB LVD adapter, carbon black	257319-B21
	Ultrium 460 tape drive, requires 3X-KZPEA-xx, KZPCA-xx, or DEPVZ SCSI adapter, carbon black Tru64 UNIX V5.1A requires Patch Kit 4: T64V51AB21AS0004-20030206.tar Tru64 UNIX V.1B requires Patch Kit 1: T64v51bb03as0001-20021229.tar OpenVMS: minimum V7.2-2	Q1518A
	Preconfigured Configurations	
	AIT 50-GB 3U rackmount kit, carbon black	274333-B21
	DLT 40/80-GB, 3U rackmount kit, carbon black	274332-B21
	DLT 40/80-GB, dual-drive, 3U rackmount kit, carbon black	274335-B21
	SDLT 110/220-GB, 3U rackmount kit, carbon black	274331-B21
	SDLT 110/220-GB, dual-drive, 3U rackmount kit, carbon black	274334-B21

Options

5U Rackmount Tape Drive Enclosure	5U LVD Rackmount Tape Drive Enclosure, carbon black, for use in H9Axx M-Series Cabinets, 0 drives	274339-B21
	Rackmount Kit for H9Axx Series Cabinets, carbon black - required for mounting 5U Rackmount Tape Drive Enclosure in M-Series cabinet	254795-001
	NOTE: The 5U Rackmount Tape Drive Enclosure supports four full-height devices; select up to four DLT or SDLT devices with 274339-B21, or select preconfigured configurations listed below.	
	DLT8000 40/80-GB tape drive, requires 3X-KZPCA-AA LVD adapter, carbon black	146196-B22
	SDLT 110/220-GB tape drive, requires 3X-KZPCA-AA or 3X-KZPEA-DB LVD adapter, carbon black	192106-B25
	SDLT 160/320-GB tape drive, requires 3X-KZPCA-AA or 3X-KZPEA-DB LVD adapter, carbon black	257319-B21
	Preconfigured Configurations	
	SDLT 110/220-GB Tape Array III, 5U rackmount kit, carbon black	274336-B21
	DLT 40/80-GB Tape Array III, 5U rackmount kit, carbon black	274337-B21
	DLT Tape Array III Model 0 enclosure, U.S.	168047-001
	Same as above, International	168047-B31
	Same as above, Japan	168047-291
Network Storage Routers	**NOTE:** The following Network Storage Routers are supported with MSL5000 and ELS9000 tape libraries:	
	NSR e1200-160 one Fibre Channel x two LVD FC to SCSI Data Router, Tru64 UNIX and OpenVMS, graphite (330728-B21)	330728-B21
	NSR e2400 two Fibre Channel x two LVD FC to SCSI Data Router with card cage, Tru64 UNIX and OpenVMS, carbon black (262665-B21)	3R-A3935-AA
	NSR e2400 two Fibre Channel x four LVD FC to SCSI Data Router with no card cage, Tru64 UNIX and OpenVMS, carbon black (262664-B21)	3R-A3745-AA
	NSR N1200 one Fibre Channel x two LVD FC to SCSI Data Router, Tru64 UNIX and OpenVMS, supports tape drives and tape libraries (280823-B21)	3R-A3747-AA
	NSR m2402 two Fibre Channel x four LVD FC to SCSI Data Router, Tru64 UNIX and OpenVMS (262653-B21)	3R-A3740-AA
	NSR m2402 two Fibre Channel x four HVD FC to SCSI Data Router, Tru64 UNIX and OpenVMS (262654-B21)	3R-A3741-AA
UltraSCSI Hubs	UltraSCSI hub with three differential ports, no single-ended ports, consists of two host ports and one storage port in 3.5-inch SBB, UltraSCSI cables not included	DS-DWZZH-03
	UltraSCSI hub with five differential ports, no single-ended ports, consists of four host ports and one storage port in 3.5-inch SBB, UltraSCSI cables not included	DS-DWZZH-05

Options

StorageWorks Fibre Channel Switches	**NOTE:** For more information on the following switches, refer to http://www.compaq.com/products/quickspecs/10457_na/10457_na.HTML	
	Fibre Channel SAN switch, 8 ports, 2 Gb, EL with Fabric Operating Software (322120-B21)	DS-DSGGD-BC
	Fibre Channel SAN switch, 8 ports, 2 Gb, Power Pack, with Fabric Operating Software (322121-B21)	DS-DSGGD-CC
	Fibre Channel SAN Switch, 16 ports, 2 Gb, Base with Fabric Operating Software (322118-B21)	DS-DSGGD-CA
	Fibre Channel SAN switch, 16 ports, 2 Gb, Power Pack, with Fabric Operating Software (322119-B21)	DS-DSGGD-CB
	Fibre Channel SAN Switch, 32 ports, 2 Gb, Base with Fabric Operating Software (240603-B21)	DS-DSGGD-AB
	Fibre Channel SAN Switch, 32 ports, 2 Gb, Power Pack with Fabric Operating Software (333764-B21)	DS-DSGGD-DB
	Fibre Channel SAN Switch, 64 ports, 2 Gb, Base with Fabric Operating Software (332177-B21)	DS-DSGGE-BA
	Fibre Channel SAN Switch, 64 ports, 2 Gb, Power Pack with Fabric Operating Software (332178-B21)	DS-DSGGE-CA
	Short wave optical GBIC (380561-B21)	DS-DXGGA-SA
McData 64-port Fibre Channel SAN Director Class Switches	SAN Director 64 (1 Gb) 32 ports, base model	DS-DMGGD-AA
	SAN Director (2 Gb) 64 ports	DS-DMGGD-BA
	SAN Director Connectivity Manager Kit	DS-DMGGO-AA
	SAN Edge Switch (2 Gb) 16 ports	DS-DMGGE-BB
	SAN Edge Switch (2 Gb) 32 ports	DS-DMGGE-BC
	NOTE: Connection for, or between, 1-Gb and/or 2-Gb SAN switches requires different cables. Refer to the Switches, Hubs, and Interconnects QuickSpecs at: http://www.compaq.com/products/quickspecs/North_America/10490.html	
Fibre Channel Disk Drives	36-GB 10K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4mm) drive (238590-B21)	3R-A3239-AA
	72-GB 10K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4mm) drive (238921-B21)	3R-A3260-AA
	146-GB 10K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4mm) drive (293556-B21)	3R-A3975-AA
	36-GB 15K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4mm) drive (236205-B21)	3R-A3210-AA
	72-GB 15K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4mm) drive (293568-B21)	3R-A3971-AA
Fibre Channel Hubs	Unmanaged Fibre Channel 7-port Storage Hub, International (Tru64 UNIX only) (234453-B31)	DS-SWXHB-I7
	Unmanaged Fibre Channel 7-port Storage Hub, Japan (Tru64 UNIX only) (234453-291)	DS-SWXHB-J7
	Unmanaged Fibre Channel 7-port Storage Hub, North America (Tru64 UNIX only) (234453-001)	DS-SWXHB-07

Step 9 - UltraSCSI RAID Array Controllers and UltraSCSI RAID Packaged Solutions - Optional External Storage Solutions/Controllers

Enterprise Virtual Array 5000	The Enterprise Virtual Array 5000 (EVA5000) is the mid to high-range member of the HP StorageWorks virtual disk array enabled by VersaStor technology. The EVA5000 is designed for the data center where there is a critical need for ever-increasing capacity/replication requirements, performance demands, and business continuance needs. Support is provided for HP StorageWorks Continuous Access, HP StorageWorks Business Copy, and HP OpenView Storage Operations Management Software. The EVA5000 is a full 2-Gb end-to-end Fibre Channel Array that operates in 1-Gb, 2-Gb or mixed 1-Gb/2-Gb SAN fabrics. The EVA5000 is available in pre-defined configurations with controllers and expansion configurations without controllers. There is also a pre-defined configuration that is optimized for the High Performance Technical Computing (HPTC) environments. For ordering information and configuration rules, refer to the EVA5000 QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11006_div/11006_div.HTML	
Enterprise Virtual Array 3000	The Enterprise Virtual Array 3000 (EVA3000) is the mid-range member of the HP StorageWorks virtual disk array enabled by VersaStor technology. The EVA3000 is designed for the data center where there is a critical need for ever-increasing capacity/replication requirements, performance demands, and business continuance needs. Support is provided for HP StorageWorks Continuous Access, HP StorageWorks Business Copy, and HP OpenView Storage Operations Management Software. The EVA3000 is a full 2-Gb end-to-end Fibre Channel Array that operates in 1-Gb, 2-Gb or mixed 1-Gb/2-Gb SAN fabrics. The EVA3000 is available in one of four integrated "independent bundle" configurations, which includes one pair of HSV100 controllers, two FC drive enclosures, and 8 to 16 FC hard drives (bundle dependent). For ordering information and configuration rules, refer to the EVA3000 QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11619_div/11619_div.HTML	
SAN Storage Array	MSA1000 Storage Works modular SAN array, supported with DS-KGPSA-CA and DS-KGPSA-DA adapters; requires connection via a switch - no direct connect; no support for FC arbitrated loop. (201723-B22) Tru64 UNIX V5.1A requires Patch Kit 4: T64V51AB21AS0004-20030206.tar Tru64 UNIX V5.1B requires Patch Kit 1: T64V51BB03AS0001-20021229.tar OpenVMS V7.3-1 requires TIMA Kit: VMS731_MSA1000-V0100 OpenVMS V7.3 requires TIMA Kit: VMS73_FIBRE_SCSI-V0500 OpenVMS V7.2-2 requires TIMA Kit: VMS722_FIBRE_SCSI-V0400	3R-A4328-AA

Options

External Storage Solutions/Controllers	Enterprise Virtual Array Model 8C8D 60-Hz, includes 42U opal storage cabinet, four M3220 controller assembly with eight HSV110 controllers, eight M5214 dual FC loop 14-bay drive enclosures	239782-001
	Enterprise Virtual Array Model 8C8D 50-Hz, includes 42U opal storage cabinet, four M3220 controller assembly with eight HSV110 controllers, eight M5214 dual FC loop 14-bay drive enclosures	249977-B21

StorageWorks Disk Array Family

NOTE: The HP StorageWorks Disk Array Family, specifically the XP128 and XP1024, are now supported on AlphaServer DS20E systems. For product and ordering information, refer to the following Web pages:
http://www.hp.com/products1/storage/products/disk_arrays/highend/xp1024/index.html
http://www.hp.com/products1/storage/products/disk_arrays/highend/xp128/index.html
The following part numbers have been assigned for reference purposes only:

3R-A4417-AA	A7876A	XP128 Disk Array Control Frame
3R-A4418-AA	A7906A	XP1024 Disk Array Control Frame

Step 10 - Storage Adapters/Controllers

NOTE: Refer to the following chart when configuring adapters, shelves, and disks.

AlphaServer DS20E Configuration Chart for Storage Adapters

Storage Adapter	Shelf	Disk Drive	Tru64 UNIX	OpenVMS
3X-KZPCA-AA	BA610-6D DS-SL13R-xx	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inch Universal	V4.0F or higher	V7.2.2 or higher
3X-KZPEA-DB	BA610-6D DS-SL13R-xx	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inch Universal	V5.1 or higher	V7.2.2 or higher
KZPCM-DA	BA36R-xx	DS-RZ1xx-VW	V4.0F or higher	V7.2-1 or higher
KZPBA-CA	BA36R-xx	DS-RZ1xx-VW	V4.0F or higher	V7.2-1 or higher

AlphaServer DS20E Configuration Chart for Storage Controllers

Options

RAID Controller	Shelf	Disk Drive	Tru64 UNIX	OpenVMS
KZPAC-AA/CA/CB	BA36R-xx	DS-RZ1xx-VW	V4.0F or higher	V7.2-1 or higher
DS-KZPCC-AC/CE BA610-6D Nile card (010615-001) minimum revision 0B required to support internal RAID. Graphics card required to run console utilities. Supported in platform part numbers: DA-56PAB-EA/FA/EW/FW and DA-56RAA-EA/FA/EW/FW. Specific patches are required for specific versions of the operating system – see DS-KZPCC-AC/CE QuickSpecs for details. DS-KZPCC-AC/CE RAID controllers support standalone and cluster configurations; no support as boot device in cluster configurations; TruCluster V5.1 (restricted to non-shared buses only).	BA610-6D DS-SL13R-xx	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inch Universal	V5.1A or higher	-
3X-KZPDC-BE/DF - Supported in platform part numbers: DY-56PAB-EA/FA/EW/FW and DY-56RAA-EA/FA/EW/FW. Restricted to Hose One slot (furthest away from memory). Host based volume shadowing or shared bus not supported. TruCluster support is restricted to non-shared buses only. Requires V5.1B with Initial Patch Kit located at: http://ftp1.support.compaq.com/public/unix/51b. Tru64 UNIX V5.1A support requires Patch Kit located at: http://ftp1.support.compaq.com/public/unix/V5.1a	BA610-6D DS-SL13R-xx	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inch Universal	V5.1B/V5.1A	V7.3-1

		Maximum # Supported		
		Tru64 UNIX	OpenVMS	
Fibre Channel	PCI Fibre Channel adapter (KGPSA-CA), (uses one slot) (168794-B21)	4	4	DS-KGPSA-CA
	PCI to 2–Gbit Fibre Channel adapter, 64-bit/33-MHz, single-channel (261329-B21)	4	4	DS-KGPSA-DA
	PCI-X to 2-Gb Fibre Channel adapter, 64-bit/66-MHz, single-channel (302784-B21) OpenVMS V7.3-1 requires TIMA Kit: VMS73_1_SCSI_FIBRE_V0300 OpenVMS V7.3-1 clusters requires TIMA Kit: VMS73_1_CLUSTER_V0100 Tru64 UNIX V5.1A requires NHD 6 and T64V51AB21AS0004-20030206.tar Tru64 UNIX V5.1B requires Patch Kit 1: T64V51BB03AS0001-20021229.tar DS-KGPSA-EA does not support MSA 1000	4	4	DS-KGPSA-EA
	Fibre Channel cable (BNGBX-xx) xx=02, 05, 15, 30, 50 meters x=1, 2, 3, 4, 5			234457-B2x

Options

SCSI	PCI 1-port Ultra2 (LVD) SCSI adapter, 32-bit, single-channel (uses one PCI slot); includes internal 68-pin and external 68-pin HD connectors; requires BN38C-xx cable to connect adapter to Ultra2 shelf; HSZxx RAID controllers not supported. OpenVMS V7.1-2 requires Tima Kit: DEC-AXPVMS-VMS712_UPDATE-V0300—4.PCSI; Tru64 UNIX V4.0F requires Patch Kit2 BL13: DUV40FAS0002-19991116.tar	4	4	3X-KZPCA-AA
	68-pin HD male-to-VHDCI male UltraSCSI cable; xx = 02, 03, 05, 10, 20, 25 meters			BN38C-xx
	PCI 2-port UltraSCSI single-ended adapter and 10/100 Mb Ethernet combo adapter (uses one PCI slot); includes internal 68-pin and 50-pin HD connectors and two external 68-pin VHDCI SCSI connectors, requires BN37A-xx cable to connect to single-ended UltraSCSI shelf	4	4	KZPCM-DA
	VHDCI male-to-VHDCI male UltraSCSI cable, xx = 02, 2E [2.5], 03, 05, 10, 20 meters			BN37A-xx
	PCI 1-port UltraSCSI single-ended adapter (uses one PCI slot); includes internal 68-pin and 50-pin HD connectors and external 68-pin HD connector, requires BN38C-xx cable (2 to 20 meters) to connect to single-ended UltraSCSI shelf	4	4	KZPBA-CA
	PCI 1-port UltraSCSI differential adapter (uses one PCI slot); includes external 68-pin HD connector, requires BN38C-xx cable (2 - 25 meter) to connect adapter to differential UltraSCSI shelf or RAID controller	4	4	3X-KZPBA-CC
	68-pin HD male-to-VHDCI male UltraSCSI cable; xx = 02, 03, 05, 10, 20, 25 meter			BN38C-xx

Options

Multimode	PCI 2-channel multimode Ultra3 LVD SCSI adapter, VHDCI (supported in dual-bus and single-bus shelves) **NOTES**: • Patch kits required, kits available at http://ftp1.support.compaq.com/public/Digital_UNIX/v5.1/	4 (V5.1 or higher)	4 (V7.2-2 or higher)	3X-KZPEA-DB
	• No shared bus support with OpenVMS. No shared tape/library support with OpenVMS or Tru64 UNIX. 3X-KZPEA-DB adapter supports shared bus using hard disk drives under Tru64 UNIX V5.1A with Patch Kit 4 and NHD5 or V5.1B with Patch Kit 1 and TruCluster V5.1A; supports maximum of two nodes per shared bus, requires 3X-BN55A-01Y-cable and connector plug assembly and 3X-H32CT-AA external LVD terminator per shared bus. • Refer to 3X-KZPEA-DB QuickSpecs for complete list of restrictions			

RAID	PCI 3-channel Ultra2 LVD RAID controller, 64-bit, 64-MB cache **NOTES**: • Supported with BA610-6D, BA356 DS-SL13R-xx or DS-SSL14-Rx shelves only. BA610-6D Nile Card must be at rev 0B to support internal RAID. When installed in BA356 shelves, part number DS-BA35X-FC is required for non-factory installations. • Graphics card is required to run the DS-KZPCC-CE console utilities (SMOR) with SRM console versions lower than V6.0 or, alternatively can be run via serial line and terminal emulation software for SRM V6.0 or higher. • PB2GA-JC/JD graphics cards are not supported. • EV6 systems not supported. • Supported in platform part numbers: DA-56PAB-EA/FA/EW/FW and DA-56RAA-EA/FA/EW/FW • Specific patches required for specific versions of the operating system. See DS-KZPCC-AC/CE QuickSpecs for latest details and other configuration information. Tru64 UNIX V4.0F requires NHD3 and Patch Kit 4 (BL15) or later Tru64 UNIX V5.1 requires Patch Kit 3 (BL17) and Early Release Patch C462. Patch Kit 3 (BL17) located at: T64V5117-C0046202-11060-Manual-ER-20010615.tar Patch C462.02 located at: http://ftp1.support.compaq.com/public/unix/v5.1/	2 with SRM V6.0 3 with SRM V6.1 (V4.0F/4.0G/5.1/5.1A)	-	DS-KZPCC-CE

	• DS-KZPCC-AC/CE RAID controllers support standalone and cluster configurations; no support as boot device in cluster configurations; TruCluster V5.1 (restricted to non-shared buses only)			
	PCI 1-channel Ultra2 LVD backplane RAID controller, 64-bit, 16-MB cache **NOTES**: • Supported with BA610-6D, BA356 and DS-SL13R-xx or DS-SSL14-RX shelves only. When installed in BA356 shelves, part number DS-BA35X-FC is required for non-factory installations. • Graphics card is required to run the DS-KZPCC-AC console utilities (SMOR) with SRM console versions lower than V6.0 or, alternatively can be run via serial line and terminal emulation software for SRM V6.0 or higher. PB2GA-JC/JD graphics cards are not supported. • EV6 systems not supported. • Supported in platform part numbers: DA-56PAB-EA/FA/EW/FW and DA-56RAA-EA/FA/EW/FW. • Specific patches required for specific revs of operating system. See DS-KZPCC-AC/CE QuickSpecs for latest details and other configuration information. Tru64 UNIX V4.0F requires NHD3 and Patch Kit 4 (BL15) or later Tru64 UNIX V5.1 requires Patch Kit 3 (BL17) and Early Release Patch C462. Patch Kit 3 (BL17) located at: T64V5117-C0046202-11060-Manual-ER-20010615.tar Patch C462.02 located at: http://ftp1.support.compaq.com/public/unix/v5.1/		-	DS-KZPCC-AC
	• DS-KZPCC-AC/CE RAID controllers support standalone and cluster configurations; no support as boot device in cluster configurations; TruCluster V5.1 (restricted to non-shared buses only)			
	PCI 2-channel PCI to Ultra3, 64-bit, 66-MHz, LVD Ultra160 backplane RAID controller with 128-MB cache (uses one PCI slot); requires connection to DS-SL13R-xx shelves or BA610-6D card cage. **NOTES**: • Restricted to Hose One slot (furthest away from memory) • Supported in platform part numbers: DY-56PAB-EA/FA/EW/FW and DY-56RAA-EA/FA/EW/FW. • No host-based volume shadowing or shared bus •	1 V5.1B/V5.1A	1	3X-KZPDC-BE

	support under OpenVMS • TruCluster support is restricted to non-shared buses only. Requires V5.1B with Initial Patch Kit located at: http://ftp1.support.compaq.com/public/unix/v5.1b/			
	• Tru64 UNIX V5.1A support requires Patch Kit located at: http://ftp1.support.compaq.com/public/unix/v5.1a/			
	PCI 4-channel PCI to Ultra3, 64-bit, 66 MHz, LVD Ultra160 backplane RAID controller with 256-MB cache (uses one PCI slot); requires connection to DS-SL13R-xx shelves or BA610-6D card cage. **NOTES**: • Restricted to Hose One slot (furthest away from memory). • Supported in platform part numbers: DY-56PAB-EA/FA/EW/FW and DY-56RAA-EA/FA/EW/FW • No host-based volume shadowing or shared bus support under OpenVMS • TruCluster support is restricted to non-shared buses only. Requires V5.1B with Initial Patch Kit located at: • http://ftp1.support.compaq.com/public/unix/v5.1b/	1 V5.1B/V5.1A	1	3X-KZPDC-DF
	• Tru64 UNIX V5.1A support requires Patch Kit located at: http://ftp1.support.compaq.com/public/unix/V5.1a			
	PCI 1-port UltraSCSI RAID controller with 4-MB cache memory, includes RAID Array 230/Plus Subsystem software and documentation kit and VHDCI female connector; tape drives not supported – 18.2-GB or higher disk drives not supported on KZPAC-xx RAID controllers	4	4	KZPAC-AA
	PCI 3-port UltraSCSI RAID controller with 4-MB cache memory (uses one PCI slot), includes RAID Array 230/Plus subsystem software and documentation kit; tape drives not supported; 18.2-GB disk drives not supported; SCSI cable required for each active port; requires BN37X-xx cable (.3 to 20 meters) to connect to single-ended UltraSCSI shelf, and BN31K-0E for external third port connection	2	2	KZPAC-CA
	Same as KZPAC-CA with 8-MB cache memory	2	2	KZPAC-CB
	Cache battery backup for KZPAC controller			KZPSC-UB
	VHDCI male-to-VHDCI male UltraSCSI cable: xx = 02, 2E [2.5], 03, 05, 10, 20, 25 meters **NOTE:** Manufacturing may substitute BN37A-02 cable for specific cabinet configurations.			BN37A-xx
	SCSI cable/bulkhead assembly kit, supports one third-port connection from KZPAC-CA/CB, allows external connection of one third port			BN31K-0E

	SCSI cable/bulkhead assembly kit, supports two third-port connections from KZPAC-CA/CB, allows external connection of two third ports			KZPAC-SB

PCI CI Adapter	PCI CI adapter for OpenVMS systems only; requires two 5.0V PCI slots and CI cable for each adapter	-	1	CIPCA-BA
	CI cable xx=10, 20,45 meters			BNCIA-xx

HVD to LVD Converters	HVD (High Voltage Differential) adapters and LVD (Low Voltage Differential) devices are normally incompatible due to their different signaling voltage levels. This incompatibility does not allow direct communication between the different technologies. The HVD to LVD converter allows connectivity between legacy HVD Host Bust Adapters and today's LVD devices. The converter provides: • Connectivity in direct attach or shared configurations of all currently available LVD devices, including disks, tapes, libraries, and shelves (4314 or 4354) when used with the KZPBA-CB and 3X-KZPBA-CC HVD adapters. With the retirement of StorageWorks 1 disks and HVD shelves (BA36R), converters are desirable where upgrades to LVD HBAs or upgrades to current operating system versions are not possible.			
	Shared and direct attach configurations are interconnected much the same as those previously configured with homogeneous HVD solutions, except that the HVD output is now passed through the converter before proceeding to the LVD device.			
	HVD to LVD one-port rackmount converter (see QuickSpecs for configuration details)			3X-DWZCV-BA
	HVD to LVD two-port rackmount converter (see QuickSpecs for configuration details)			3X-DWZCV-CA

Step 11 - M-Series Cabinets - Optional

M-Series enclosures require selection of the following items:

- H9A10 or H9A15 cabinet, 120V or 240V
- Rack kit for each system
- H9A10 or H9A15 rear cabinet extender
- Cabinet front door based on cabinet height
- Factory integration
- Ballast kit if one or two systems are ordered for the H9A15 cabinet
- Power cord

NOTE: For more information on M-Series Cabinet Enclosures, see http://www.compaq.com/alphaserver/products/M-Series/index.html

NOTE: This Web site is available in English only.

Cabinet Configuration Chart for AlphaServer DS20E (5U) with DS-SL13R (3U) StorageWorks Shelves

- Disk shelves cannot be mixed in same cabinet

Cabinet	Rack Kit	Cabinet Height/Space	Systems	DS-SL13R Shelves	Ballast Kit
H9A10-MC/MD	3X-BA56R-RC	67-inch/34U	1	8	-
			2	7	-
			3	5	-
			4	4	-
			5	2	-
			6	0	-
H9A15-MC/MD	3X-BA56R-RC	79-inch/41U	1	8	1
			2	7	1
			3	7	-
			4	6	-
			5	4	-
			6	2	-

M-Series Cabinets	67-inch cabinet with 59.5-inch or 34U of usable vertical space, 120V dual-24A controller, each with 10 NEMA 5-15R outlets, input power plug NEMA L5-30P, Americas, Asia Pacific; includes rear door and top fan tray	H9A10-MC
	67-inch cabinet with 59.5-inch or 34U of usable vertical space, 240V dual-16A controller, each with 12 IEC C13 outlets, input power plug IEC 309, 16A, Europe; includes rear door and top fan tray	H9A10-MD
	79-inch cabinet with 71.7-inch or 41U of usable vertical space, 120V dual-24A controller, each with 10 NEMA 5-15R outlets, input power plug NEMA L5-30P, Americas, Asia Pacific; includes rear door and top fan tray	H9A15-MC
	79-inch cabinet with 71.7-inch or 41U of usable vertical space, 240V dual-16A controller, each with 12 IEC C13 outlets, input power plug IEC 309, 16A, Europe; includes rear door and top fan tray	H9A15-MD

Options

Rear Cabinet Extender - Requires selection of one cabinet extender for each H9A10 or H9A15 cabinet	Rear cabinet extender, top gun blue, for H9A10-MC/MD cabinets	H9C10-TE
	Rear cabinet extender, top gun blue, for H9A15-MC/MD cabinets	H9C15-TE
Cabinet Front Door - Requires selection of door based on cabinet height	Front door, top gun blue, for H9A10-MC/MD cabinet enclosure	H9C10-TF
	Front door, top gun blue, for H9A15-MC/MD cabinet enclosure	H9C15-TF
Factory Integration - Required	Factory Integration of systems and storage devices assembled and configured in cabinet enclosure in predefined locations	YS-ASCAA-AA

Ballast Kit - Required only if one system is ordered for the H9A15 cabinet

- Ballast is added to a cabinet at particular locations for specific configurations to meet safety regulations for installation, operation, and service; see Cabinet Configuration Chart

Two 35 to 40 lb steel plates	H9C10-MC

Rackmount Power Cord - Required for each system	U.S./Canada	BN20Z-4E
	Non-U.S.	BN35S-4E
	Japan, 2.5-meter	3X-BN46D-4E

Shelves Supported in M-Series Cabinets - Optional	StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf, North America and International use except Japan (190209-001)	DS-SL13R-AA
	StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf, Japan (190209-291)	DS-SL13R-AJ
	StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf, North America and International use except Japan (190211-001)	DS-SL13R-BA
	StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf, Japan (190211-291)	DS-SL13R-BJ

CustomSystems Support

- Cabinets containing systems and storage must be assembled by qualified assemblers: HP Manufacturing
- For custom integration of systems

Step 12 - Graphics Adapters - Optional

- RAID Configuration Utility is accessible via console port for Tru64 UNIX and OpenVMS systems; optional graphics capability available
- Select graphics adapter, monitor, mouse, and country-specific keyboard if required
- Open3D license ships with PowerStorm 4D51T and PowerStorm 300/350 graphics accelerators;
- Open3D drivers and libraries ship with either the operating system or graphics accelerator.

	Maximum # Supported		
	Tru64 UNIX	**OpenVMS**	
ATI RADEON 7500 64-MB PCI 2D/3D Graphics Accelerator **NOTE:** Only RADEON 7500 PCI cards can be used in a multi-card Environment. For multi-head support, refer to Read Me First document/Release Notes. System orders that contain more than one ATI RADEON 7500 card will ship with one card installed, the remainder of the ATI RADEON 7500 cards will ship as spares. Tru64 UNIX requires V5.1B with Patch Kit 1: Tru64V51BB03AS0001-20021229.tar OpenVMS requires V7.3-1 with TIMA Kit: DEC-AXPVMS-VMS731_GRAPHICS-V0300--4.PCSI	4 - 2D only 1 - 3D 1 - Dual head (cloned video using DVI port - 2D only) V5.1B	4 - 2D/3D 0 - Dual head V7.3-1	3X-PBXGG-AA
Tru64 UNIX Open 3D license for RADEON 7500 (required for 3D functionality)			QL-6ZRA9-AA
OpenVMS Open3D license for RADEON 7500 (required for 3D functionality)			QL-0ADA9-AA
Additional Tru64 UNIX media kit for RADEON 7500 (initial kit ships with RADEON 7500 card)			QA-6ZRAA-H8
Additional OpenVMS media kit for RADEON 7500 (initial kit ships with RADEON 7500 card)			QA-6ZPAA-H8
PowerStorm 300 3D multi-head graphics accelerator with 15-MB frame buffer memory and 16-MB texture memory	4	4	SN-PBXGD-AD
PowerStorm 350 3D multi-head graphics accelerator with 30-MB frame buffer memory and 32-MB texture memory	4	4	SN-PBXGD-AE
PCI combo adapter - See Step 7	1	1	3X-DEPVZ-AA

Step 13 - Monitors - Optional

- RAID Configuration Utility is accessible via the console port for Tru64 UNIX and OpenVMS systems; optional graphics capability is available
- Graphics monitors other than those listed can be used if compatible with SVGA graphics ordered with system
- Video extension cable required if monitor is located more than 1-meter from server
- Monitors will ship with, but not be integrated with systems
- A video cable, 6-foot/1.8-meter length, is included with all variants of monitors

Options

Carbon/Silver Monitors	V7550 17-inch (16-inch viewable image size) flat-faced shadow mask color monitor, two-tone (carbon/silver), 0.25mm dot pitch, VGA to 1024 x 768 @85 Hz, MPRII/TCO99/Energy Star compliant, Northern Hemisphere with North America power cord, VGA cable	3R-A4002-AA
	Same as above, with Euro power cord	3R-A4201-AA
	Same as above, APD, no power cord	3R-A4202-AA
	Same as above, Southern Hemisphere, with Australia/New Zealand power cord	3R-A4203-AA
	S7500 17-inch (16-inch viewable image size) FST multi-frequency color monitor, 2-tone (carbon/silver), 0.24-mm dot pitch, VGA to 1024 x 768 @85 Hz, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with PRC power cord CCIB, VGA cable	3R-A4800-AA
	P930 19-inch (18-inch viewable image size) auto-scanning color monitor, Diamondtron NF, 0.24-mm aperture grille pitch, VGA to 1600 x 1200 @85 Hz, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with North America power cord, VGA cable	3R-A4215-AA
	Same as above, with Euro power cord	3R-A4391-AA
	Same as above, Taiwan, with North America power cord	3R-A4392-AA
	Same as above, Southern Hemisphere, 0.25 to 0.27 mm aperture grille pitch, with Australia/New Zealand power cord	3R-A4393-AA
	S9500 17-inch (16-inch viewable image size) FST multi-frequency color monitor, 2-tone (carbon/silver), 0.24-mm dot pitch, VGA to 1280 x 1024 @85 Hz, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with PRC power cord CCIB, VGA cable	3R-A4801-AA
	P1130 21-inch (19.8-inch viewable image size) FD Trinitron auto-scanning color monitor, 0.24-mm aperture grille pitch, VGA to 1792 x 1344 @85Hz, dual video input, USB Hub, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with North America power cord, VGA cable	3R-A4216-AA
	Same as above, with Euro power cord	3R-A4396-AA
	Same as above, Taiwan, no power cord	3R-A4397-AA
	Same as above, with PRC power cord, CCIB	3R-A4400-AA
	Same as above, Southern Hemisphere, with Australia/New Zealand power cord	3R-A4398-AA
Carbon/Silver Flat Panel Monitors	TFT1825, 18-inch (18-inchviewable image size) TFT flat panel monitor, 0.28mm pixel pitch, 1600 x 1200 @60Hz, multi-mode support, MPRII/TCO99/Energy Star compliant, one VGA, one DVI-I input connector. North America power cord, VGA and DVI-I cables	3R-A4292-AA
	L1530, 15-inch (15-inch viewable image size) TFT flat panel monitor, 0.297 mm pixel pitch, 1024 x 768 @60 Hz, multi-mode support, MPRII/TCO99/Energy Star compliant, two video input connectors (one VGA and one DVI-I), North America power cord, VGA and DVI-I cables	3R-A4857-AA

Options

	L1530, 15-inch (15-inch viewable image size) TFT flat panel monitor, 0.297 mm pixel pitch, 1024 x 768 @60 Hz, multi-mode support, MPRII/TCO99/Energy Star compliant, two video input connectors (one VGA and one DVI-I), Euro power cord, VGA and DVI-I cables	3R-A4858-AA
Video Extension Cable	6-foot/1.8-meter video extension cable	BN39C-02
Monitor Power Cords	North America, 120V, 75-inch	BN26J-1K
	Australia, New Zealand, 2.5-meter (103541-511)	BN19H-2E
	Central Europe, 2.5-meter	BN19C-2E
	Denmark, 2.5-meter (103541-481)	BN19K-2E
	Egypt, India, South Africa, 2.5-meter (103541-AR1)	BN19S-2E
	Israel, 2.5-meter	BN18L-2E
	Italy, 2.5-meter (103541-461)	BN19M-2E
	Japan, 2.5-meter	3X-BN46F-02
	Switzerland, 2.5-meter (103541-511)	BN19E-2E
	UK, Ireland, 2.5-meter	BN19A-2E

Step 14 - Networks and Communications - Optional

- Reference individual product information for operating system support.
- See Step 2 for mandatory supported Ethernet adapters

	Maximum # Supported		
	Tru64 UNIX	**OpenVMS**	
Ethernet 10/100/1000			
Single-port 100Mbps (MMF/duplex-SC) add-on daughter card for use with 3X-DE602-BB. The combined 3X-DE602-BB 3X-DE602-FA provides two 10/100 (UTP/RJ45s) and one 100Mbps (MMF/SC) ports in a single PCI slot option. **NOTE:** The 3X-DE602-TA cannot be used standalone. Use BN34A or BN34B cables.	2	2	3X-DE602-FA
PCI (32-/64-bit, 33-/66-MHz) dual-port 10/100 Ethernet (UTP/RJ45s) NIC and Base Module. (One 3X-DE602-TA or 3X-DE602-FA optional add-on daughter card can be combined with this module.) Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	2	2	3X-DE602-BB
Dual-port 10/100 Ethernet (UTP/RJ45) add-on daughter card for use with the 3X-DE602-BB only. The combined 3X-DE602-BB and 3X-DE602-TA modules provide four 10/100 (UTP/RJ45s) ports in a single PCI slot option; allows for a maximum of 16 ports per system. **NOTES**: The 3X-DE602-TA cannot be used as standalone. • OpenVMS V7.3 requires Tima Kit: DEC-AXPVMS-VMS73_LAN-V0100—4.PCSI • OpenVMS V7.2-2H1 requires OpenVMS Tima Kit located at:	2	2	3X-DE602-TA

Options

http://ftp.support.compaq.com/patches/.new/openvms.shtml Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.			
PCI (32-/64-bit, 33-/66-MHz) single-port 1000 Mbps (MMF/SC) NIC; no on-board Boot-ROM support. Use BN34A or BN34B cables.	2	1	DEGPA-SA
PCI (32-/64-bit, 33-/66-MHz) single-port 10/100/1000 (UTP/RJ45) Gigabit NIC, copper; no on-board Boot-ROM support. **NOTES**: • Requires minimum version of Tru64 UNIX V5.0A, Patch kit 2: T64V50AAS0002-20001004.tar • Requires minimum version of OpenVMS V7.2-2; OpenVMS V7.3 requires Patch kit: DEC-AXPVMS-VMS73_LAN-V0100—4.PCSI Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	2	2	DEGPA-TA
PCI single-port 1000 Mbps (MMF with duplex-SC) Gigabit Ethernet • OpenVMS: Mandatory driver update. Please refer to Customer Advisory VO030630_CW01 http://wwss1pro.compaq.com/support/reference_library/viewdocument.asp?source=VO030630_CW01.xm1&dt=3> for more information. • OpenVMS V7.3-1 supported as cluster-interconnect and standalone network interconnect. Patch Kits required: http://search.support.compaq.com/ • First download and install DEC-AXPVMS-VMS731_PCSI_V0100-4.PCSI ECO kit. Second download and install DEC-AXPVMS-VMS731_LAN_V0600-4.PCSI ECO kit. • Tru64 UNIX V5.1A requires Patch Kit 004 - T64V51AB21AS0004-20030206.tar and Early Release Patch Kit - T64V51AB21-C0127901-19213-E-20030710.tar • Tru64 UNIX V5.1B requires Patch Kit 2 - T64V51BB22AS0002-20030415.tar and Early Release Patch Kit to update driver to v1.0.21 - Early Release Patch Kit - T64 UNIX V51BB22-C0019200-1912-E-20030710.tar Use BN34A, BN34B, or equivalent cables with SC connectors.	4	4	3X-DEGXA-SA
PCI single-port 10/100/1000Mbps (Twisted-Pair Copper with RJ45) Gigabit Ethernet • OpenVMS: Mandatory driver update. Please refer to Customer Advisory VO030630_CW01 http://wwss1pro.compaq.com/support/reference_library/viewdocument.asp?source=VO030630_CW01.xm1&dt=3> for more information. • OpenVMS V7.3-1 supported as cluster-interconnect and standalone network interconnect. Patch Kits required: http://search.support.compaq.com/ • First download and install DEC-AXPVMS-VMS731_PCSI_V0100-4.PCSI ECO kit. Second download and install DEC-AXPVMS-VMS731_LAN_V0600-4.PCSI ECO kit. • Tru64 UNIX V5.1A requires Patch Kit 004 - T64V51AB21AS0004-	4	4	3X-DEGXA-TA

20030206.tar and Early Release Patch Kit - T64V51AB21-C0127901-19213-E-20030710.tar • Tru64 UNIX V5.1B requires Patch Kit 2 - T64V51BB22AS0002-20030415.tar and Early Release Patch Kit to update driver to v1.0.21 - Early Release Patch Kit - T64V51BB22-C0019200-1912-E-20030710.tar Use BN25G, BN26M, BN24Q, BN28Q twisted pair RJ45 cables			

Multi-function Ethernet 10/100/1000			
PCI (32-bit, 33-MHz) multi-function (single-port 10/100 Ethernet UTP/RJ45, Ultra2 LVD SCSI, and 2D graphics) adapter **NOTES**: • No support for multi-head graphics • OpenVMS V7.2-2 requires OpenVMS Tima Kit located at: http://ftp.support.compaq.com/ patches/.new/openvms.shtml • Tru64 UNIX V5.1 requires Patch Kit 3: T64V51AS0003-20010413.tar • Tru64 UNIX V4.0F with NHD2 • TruCluster V5.1 support restricted to non-shared buses Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	1	1	3X-DEPVZ-AA
3X-DEPVZ-AA specific-use 3-meter LVD2 SCSI cable			BN37A-03

FDDI			
PCI (32-bit, 33-MHz) to FDDI SAS (MMF/duplex-SC) NIC. Use BN34A, BN34B, or BN34D cables.	2	2	3X-DEFPA-AC
PCI (32-bit, 33-MHz) to FDDI DAS (MMF/duplex-SC) NIC. Use BN34A, BN34B, or BN34D cables.	2	2	3X-DEFPA-DC
FDDI-specific cable - Multimode fiber optic (MMF) 62.5/125um duplex cable with SC-to-MIC connectors. -xx = available lengths: (01, 03, 10) for 1, 3, 10 meters			BN34D-xx
PCI (32-bit, 33-MHz) to FDDI SAS (UTP/RJ45) NIC. Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	2	2	3X-DEFPA-UC
PCI (32-bit, 33-MHz) to FDDI DAS (UTP/RJ45s) NIC. Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	2	2	3X-DEFPA-MC

ATM			
PCI (32-bit, 33-MHz) to 155 Mbps ATM, copper NIC with RJ45 connector. Use BN25G-xx, or BN26M-xx cables.	4	4	3X-DAPBA-UA
PCI (32-bit, 33-MHz) to 155 Mbps ATM fiber NIC with SC connector. Use BN34B-xx cable.	4	4	3X-DAPBA-FA

Asynchronous Communications (ASYNC)			
PCI (32-bit, 33-MHz) to quad-port Async Communications NIC with DB-25 octopus cable	See *Note	See *Note	PBXDA-BA
PCI (32-bit, 33-MHz) to 8-port Async Communications NIC with DB-25 octopus cables	See *Note	See *Note	PBXDA-BB
PCI 16-port asynchronous controller, cable included	See *Note	See *Note	PBXDA-AC

PBXDA-AC Asynchronous Connector Adapters			
RJ45 to DB-25 converter cable			CXI01-AC
RJ45 to DEC MJ11 converter cable (8 pack)			CXI01-AF
Asynchronous multi-port MUX expander XEM			CXI01-AB
***NOTE:** For details, see the DS20E Supported Options List - http://www.compaq.com/alphaserver/options/asds20e/asds20e_options.html			

Synchronous Communications (SYNC)			
PCI (32-bit, 33-MHz) to dual-port intelligent synchronous communications NIC. Requires at least one (maximum two) BN34x synchronous cable listed below.	4	4	3X-PBXDD-AA
PCI (32-bit, 33-MHz) to quad-port intelligent synchronous communications NIC. Requires at least one (maximum four) BN34x synchronous cable listed below.	4	4	3X-PBXDD-AB

Synchronous-Specific Cables			
EIA-530 single-port cable			3X-BC34G-06
V.24/EIA-232 single-port cable			3X-BC34L-06
V.11/x.21 single-port cable			3X-BC33S-06
V.35 single-port cable			3X-BC34T-06

Ethernet, FDDI, ATM Multi-use Cables			
Multimode fiber optic (MMF) 62.5/125um duplex cable, with SC-to-ST connectors. –xx = available lengths: (2E, 4E, 01, 03, 10, 20, 30) for 2.4, 4.5, 1, 3, 10, 20 30 meters			BN34A-xx
Multimode fiber optic (MMF) 62.5/125um duplex cable, with SC-to-SC connectors. -xx = available lengths: (2E, 4E, 01, 03, 10, 20, 30) for 2.4, 4.5, 1, 3, 10, 20, 30 meters			BN34B-xx
Category 5e (4-Unshielded Twisted Pairs/UTP) straight-through cable with RJ45-to-RJ45 connectors for system to switch, repeater, or hub connectivity. -xx = available lengths: (0B, 0E, 01, 03, 04, 07) for 0.2, 0.5, 1, 3, 4, 7 meters			BN25G-xx
Category 5e (4-Twisted Pairs, Screened/ ScTP) straight-through cable with RJ45-to-RJ45 connectors for system to switch, repeater, or hub connectivity. -xx = available lengths: (0E, 01, 03, 04, 07) for 0.5, 1, 3, 4, 7 meters			BN26M-xx
Category 5e (4-Unshielded Twisted Pairs/UTP) Xover cable with RJ45-to-RJ45 connectors for system to switch, repeater, or hub connectivity. -xx = available lengths: (0E, 01, 03, 04, 07) for 0.5, 1, 3, 4, 7 meters			BN24Q-xx
Category 5e (4-Twisted Pairs, Screened/ScTP) Xover cable with RJ45-to-RJ45 connectors for system to switch, repeater, or hub connectivity. -xx = available lengths: (0E, 01, 03, 04, 07) for 0.5, 1, 3, 4, 7 meters			BN28Q-xx

Options

Step 15 - MEMORY CHANNEL - Optional

Tru64 UNIX Systems (V5.0A and later)	• Each system node in the cluster requires a TruCluster Server license (QL-6BRAC-AA)
Tru64 UNIX Systems (V4.0G and earlier)	• Requires a minimum of Tru64 UNIX V4.0F with TruCluster V1.6 or later • Each system node in the cluster requires a TruCluster Production Server (QB-3RLAE-AA) or TruCluster MEMORY CHANNEL software license (QB-4ZCAE-AA) • TruCluster MEMORY CHANNEL license (QB-4ZCAG-AA), normally used for high performance technical computing applications, not required if systems have a TruCluster Production Server license (QB-3RLAE-AA)
OpenVMS Systems	• Requires OpenVMS V7.1-2 or later and OpenVMS Cluster license (QL-MUZAC-AA)
Configuring Information	• Up to two PCI to System Area Network adapters (CCMAB-AA) are supported in a single system • Two-node clusters can be configured by ordering a CCMAB-AA for each node and one BN39B-04 or BN39B-10 cable; cable connects directly to CCMAB-AA in each node. • For a two-node cluster that will not need to be rebooted when adding additional members, order one CCMAB-AA adapter and one BN39B-04 or BN39B-10 cable for each node, and one CCMHB-AA hub for the cluster. • For three- or four- node clusters, order one CCMAB-AA adapter and one BN39B-04 or BN39B-10 cable for each node, and one CCMHB-AA hub for the cluster • CCMHB-AA includes four CCMLB-AA line cards and supports up to four nodes; expansion up to eight system nodes can be achieved by adding up to four additional CCMLB-AA line cards • If nodes must be separated by a distance longer than standard copper cables allow the CCMFB option converts the output of the standard CCMAB controller or CCMLB line card to single-mode fiber optic cable. The fiber optic connection may be up to 2,000 meters long between two CCMAB controllers connected in virtual hub mode, or 3,000 meters between a CCMAB controller and a CCMHB hub. (The connection from the CCMHB hub to a second system may also be 3,000 meters.) The CCMFB option requires a second PCI slot in the system from which it draws power only. It is normally connected to the corresponding CCMAB controller with the short BN39B-01 cable. The CCMFB is also used in the CCMHB hub where it occupies a slot normally used by the CCMLB line card, limiting expansion to four radial fiber optic connections. • If two CCMAB-AA's are configured in each system, a second CCMHB-AA is required.

MEMORY CHANNEL Controller	PCI System Area Network Controller, maximum two	CCMAB-AA
	System Area Network Hub with four line cards; includes BN19P-2E power cord for Canada, Japan, and US operations- for other regions, order appropriate power cord from list below	CCMHB-AA
	Expansion line card for CCMHB hub	CCMLB-AA
	1-meter cable for CCMAB and CCMHB	BN39B-01
	4-meter cable for CCMAB and CCMHB	BN39B-04
	10-meter cable for CCMAB and CCMHB	BN39B-10
	Copper-to-single mode fiber optic converter – 5V (clock not affected)	CCMFB-AA
MEMORY CHANNEL Power Cords	Australia, New Zealand (103541-011)	BN19H-2E
	Central Europe	BN19C-2E
	Denmark (103541-481)	BN19K-2E
	Egypt, India (103541-AR1)	BN19S-2E
	Ireland, United Kingdom	BN19A-2E
	Israel	BN18L-2E
	Italy (103541-461)	BN19M-2E
	Switzerland (103541-511)	BN19E-2E

Step 16 - Keyboards, Mouse, Power Cords, Documentation

- Keyboard and mouse are not included with system and must be ordered separately
- All keyboards listed may not be available in all geographies
- Select an opal OpenVMS keyboard for use with VT5xx text terminals

NOTE: The 3X-LK463-xx is a dual-personality keyboard that can be used with a USB or PS/2 port.

	Opal	**Carbon**	
Keyboard/Language	**OpenVMS**	**Tru64 UNIX**	**OpenVMS**
U.S. keyboard	LK461-A2	3R-A4362-AA	3X-LK463-A2
Arabic keyboard	-	3R-LKQ48-BR	-
Belgian keyboard	LK461-AB	3R-LKQ48-AB	3X-LK462-AB
BHCSY keyboard	-	3R-LKQ48-AX	-
Canadian/English keyboard	LK461-AQ	-	3X-LK462-AQ
Canadian/French keyboard	LK461-AC	3R-LKQ48-AC	3X-LK462-AC
Cyrillic keyboard (Russian)	LK461-BT	3R-LKQ48-BT	3X-LK462-BT
Czech keyboard	LK461-BV	3R-LKQ48-BV	3X-LK462-BV
Danish keyboard	LK461-AD	3R-LKQ48-AD	3X-LK462-AD
Dutch keyboard	LK461-AH	3R-LKQ48-AH	3X-LK462-AH
Finnish keyboard	LK461-AF	3R-LKQ48-AF	3X-LK462-AF
French keyboard	LK461-AP	3R-LKQ48-AP	3X-LK462-AP
German keyboard	LK461-AG	3R-LKQ48-AG	3X-LK462-AG

Options

Greek keyboard	LK461-BH	3R-LKQ48-BH	3X-LK462-BH
Hebrew keyboard	LK461-AT	3R-LKQ48-AT	3X-LK462-AT
Hungarian keyboard	LK461-BQ	3R-LKQ48-BQ	3X-LK462-BQ
International keyboard	-	3R-A4362-AA	-
Italian keyboard	LK461-AI	3R-A4363-AA	3X-LK462-AI
Japanese keyboard	-	3R-LKQ48-AJ	-
Korean keyboard	-	3R-LKQ48-BK	-
Latin-American keyboard	-	3R-LKQ48-AR	-
Norwegian keyboard	LK461-AN	3R-LKQ48-AN	3X-LK462-AN
Polish keyboard	LK461-BP	3R-LKQ48-BP	3X-LK462-BP
Portuguese keyboard	LK461-AV	3R-LKQ48-AV	3X-LK462-AV
Romanian keyboard	LK461-BL	-	3X-LK462-BL
Simplified Chinese keyboard	-	3R-A4370-AA	-
Slovak keyboard	LK461-CZ	3R-LKQ48-CZ	3X-LK462-CZ
Spanish keyboard	LK461-AS	3R-A4372-AA	3X-LK462-AS
Swedish keyboard	LK461-AM	3R-LKQ48-AM	3X-LK462-AM
Swiss/French keyboard	LK461-AK	3R-A4374-AA	3X-LK462-AK
Swiss/German keyboard	LK461-AL	-	3X-LK462-AL
Traditional Chinese keyboard	-	3R-LKQ48-BI	-
Thai keyboard	-	3R-LKQ48-CB	-
Turkish Q keyboard	LK461-BU	3R-LKQ48-BU	3X-LK462-BU
Turkish F keyboard	LK461-BW	-	3X-LK462-BW
UK keyboard	-	3R-A4378-AA	-
Yugoslavian keyboard	LK461-BY	-	3X-LK462-BY

Mouse	3-button mouse – carbon	3R-A3480-AA
Keyboard or Mouse Extension Cable	6-foot/1.8-meter keyboard or mouse extension cable; to extend both keyboard and mouse order two cables	3X-BC34A-06

Step 17 - Console Terminal - Optional

- Any terminal can be used as a console device
- Third-party console devices require an EIA-232 25-pin DSUB connector

VT510 video terminal; requires H8575-x cable	VT510-xx
Console cable, female connector	H8575-A
Console cable, male connector	H8575-D
Console cable, male connector (IBM compatible)	H8575-E

Step 18 - Software - Required selection of media and documentation for first system on site

Options

- Software Processor Code = E

Tru64 UNIX

- AlphaServer DS20E Tru64 UNIX systems include Unlimited User license, Server Extension license, Internet Express, and Secure Web Server
- AlphaStation DS20E Tru64 UNIX systems include Base 2-user

When using Tru64 UNIX V5.0a or later

Tru64 UNIX media and online documentation on CD-ROM	QA-6ADAA-H8
Tru64 UNIX full hard copy documentation	QA-6ADAA-GZ
Tru64 UNIX Unlimited User license	QL-MT7AE-AA
StorageWorks Software Package, with licenses for Logical Storage Manager and AdvFS Utilities	QB-5RXAE-AA
TruCluster Plus Software Package with licenses for TruCluster Server, Logical Storage Manager, and AdvFS Utilities	QP-6R9AC-AA
TruCluster Server license	QL-6BRAC-AA
AdvFS Utilities License	QL-0EGAE-AA
Logical Storage Manager License	QL-2GVAE-AA
Advanced Server for Tru64 UNIX, 25 client concurrent use license	QL-5U29M-3D
Advanced Server for Tru64 UNIX, 50 client concurrent use license	QL-5U29M-3E
Advanced Server for Tru64 UNIX, 100 client concurrent use license	QL-5U29M-3F
Advanced Server for Tru64 UNIX, 250 client concurrent use license	QL-5U29M-3G
Advanced Server for Tru64 UNIX, 500 client concurrent use license	QL-5U29M-3H
Layered products media and documentation for Tru64 UNIX on CD-ROM	QA-054AA-H8
DECnet/OSI end-system license for Tru64 UNIX	QL-MTJAE-AA
DECnet/OSI extended function license for Tru64 UNIX	QL-MTKAE-AA

OpenVMS

- AlphaServer DS20E OpenVMS systems include Base license with System Manager license and Enterprise Integration Server Package for OpenVMS Revision V3.1
- AlphaStation DS20E OpenVMS systems include Base license, Concurrent Use
  1-user license, and NAS 150 Client license
- Enterprise Integration Package includes licenses for TCP/IP Services for OpenVMS, DECwindows Motif for OpenVMS Alpha, DECprint Supervisor for OpenVMS Alpha Plus, DECprint Supervisor for OpenVMS Open, DECnet-Plus for OpenVMS Alpha End System, Archive/Backup System for OpenVMS Management Tools, Archive/Backup Agent for Windows NT, OpenVMS Disk Services for Windows NT, Office Server for OpenVMS, PATHWORKS 32, PATHWORKS V6 for OpenVMS – Advanced Server, and Office Server Client Access License

OpenVMS V7.1-2 media and online documentation on CD-ROM	QA-MT1AR-H8
OpenVMS media and online documentation on CD-ROM	QA-MT1AA-H8
OpenVMS hard copy documentation	QA-001AA-GZ
Layered products media and documentation for OpenVMS on CD-ROM	QA-03XAA-H8

- OpenVMS Concurrent Use licenses provide the right to interactively use the operating system by the specified number of concurrent users on a

designated OpenVMS system. OpenVMS Concurrent Use licenses can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.
- OpenVMS Traditional Unlimited Use license is system specific and can only be used on one single system at a time. It cannot be shared between systems or in an OpenVMS VAX or OpenVMS Alpha Cluster.

Concurrent Use 1-user license	QL-MT3AA-3B
Concurrent Use 2-user license	QL-MT3AA-3C
Concurrent Use 4-user license	QL-MT3AA-3D
Concurrent Use 8-user license	QL-MT3AA-3E
Concurrent Use 16-user license	QL-MT3AA-3F
Concurrent Use 32-user license	QL-MT3AA-3G
Concurrent Use 64-user license	QL-MT3AA-3H
Concurrent Use 128-user license	QL-MT3AA-3J
Concurrent Use 256-user license	QL-MT3AA-3K
OpenVMS Cluster license for Alpha systems	QL-MUZAC-AA
OpenVMS Cluster Client license for Alpha systems	QL-3MRAC-AA
OpenVMS Cluster Client to Full VMS Cluster Migration license	QL-6J7AC-AA
DECnet extended function license for OpenVMS	QL-MTGAE-AA
DECnet end-system to extended function upgrade license for OpenVMS	QL-MTHAE-AA
OpenVMS Volume Shadowing license	QL-2A1AE-AA

Step 19 - Hardware and Software Support Services

- Select one of the optional HP Care Pack Service Packages described below that best supports the customer's operational requirements for system availability.

HP Care Pack Services

- HP Care Pack Services are available for AlphaServer/AlphaStation systems running Tru64 UNIX or OpenVMS operating systems. HP Care Pack Services are designed for customers who require support beyond that provided by the hardware product warranty with coverage for both Principal server/stations and SSPs (Subsequent System Packages) - that meet a full range of customer support requirements.

Program Features – Principal Server

HP Support Plus

- 13 x 5 HW/SW support
- 4-hour response on-site hardware support
- 2-hour response for software support
- License Subscription for HP O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX)
- Consolidated Software Media Update Distribution for OpenVMS or Tru64 UNIX and their layered products. (Layered products not included on Consolidated Media Update Distribution can be ordered separately.)

Options

HP Support Plus 24

- 24 x 7 HW/SW support
- Named HW engineer
- 4-hour response on-site hardware support
- 2-hour response for software support
- License Subscription for HP O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX)
- Consolidated Software Media Update Distribution for OpenVMS or Tru64 UNIX and their layered products. (Layered products not included on Consolidated Media Update Distribution can be ordered separately.)

Program Features – Additional Services

SSPs (Subsequent System Packages)

- For HP Care Pack Support Plus and Support Plus 24
- HW Support at same level as corresponding package for Principal server/station
- License Subscription: HP O/S (where applicable)
- Telephone support through Principal server/station covered by full support package

Installation

- Pre-installation review
- Unpacking of equipment
- Assemble and test
- Basic product usage info
- No software installation added

Installation & Startup HP O/S

- Pre-installation review
- Unpacking of equipment
- Assemble and test
- Basic product usage info
- Install operating systems
- Product configuration
- Print and network access
- Orientation

Model/HP Care Pack Service	Principal Server/Station 1 year	Principal Server/Station 3 years	Subsequent Systems 1 year	Subsequent Systems 3 years
AlphaServer/AlphaStation DS20E				
HP Support Plus	FP-A01MA-12	FP-A01MA-36	FP-A21MA-12	FP-A21MA-36
HP Support Plus 24	FP-A02MA -12	FP-A02MA-36	FP-A22MA-12	FP-A22MA-36
Installation	FP-AINST-MA	FP-AINST-MA	FP-AINST-MA	FP-AINST-MA
Installation & Startup	FP-ASTAR-MA	FP-ASTAR-MA	FP-ASTAR-MA	FP-ASTAR-MA

Options

NOTES:

- AlphaServer/AlphaStation DS20E systems include three years hardware warranty with 5x9, on-site Next Business Day response.
- HP Care Pack Services include support for new HP branded hardware options internal to the AlphaServer/AlphaStation enclosure plus a monitor (17-inch or less excluding flat panel models).
- External storage devices/cabinets carry their own level of warranty and should be quoted separately for uplifted warranty services.
- In addition to the HP Care Pack Services shown above, other service packages are available for separate hardware and software support. For more information on Hardware and Software Upfront Services and other HP service options available for AlphaServer and AlphaStation systems, consult your Sales Account Manager, HP Services Principal, or visit http://www.hp.com/hps/

Pedestal	**Dimensions** (H x W x D)	18.5 x 8.85 x 27.5 in (47 x 22.5 x 69.9 cm)		
	Shipping Dimensions	24 x 26.25 x 40 in (61 x 66 x 101.6 cm)		
	Weight	Typical Configuration	80 lb (36 kg)	
		Maximum Configuration	88 lb (40 kg)	
	Shipping Weight	Nominal	100 lb (45 kg)	
		Maximum	110 lb (50 kg)	
	Clearances		**Operating**	**Service**
		Front	15 in (38.1 cm)	15 in (38.1 cm)
		Rear	6 in (15 cm)	29.5 in (75 cm)
		Left Side	None	None
		Right Side	None	None

Rackmount	**Dimensions** (H x W x D)	8.75 x 17.5 x 26 in (22.2 x 44.5 x 66 cm) (5U)		
	Shipping Dimensions	24 x 26.25 x 40 in (61 x 66 x 101.6 cm)		
	Weight	When lifting	Nominal	80 lb (36 kg)
			Maximum	80 lb (36 kg)
		Total added to cabinet (brackets, slides, cables):	Nominal	84 lb (38 kg)
			Maximum	88 lb (40 kg)
	Shipping Weight	Nominal	100 lb (45 kg)	
		Maximum	110 lb (50 kg)	
	Clearances	**Operating**	**Service**	
		See specific cabinet requirements	Minimum 4 ft (121.9 cm), 28 in (71 cm) withdrawal on rails	

Cabinet		**H9A10 M-Series**	**H9A15 M-Series**
	Dimensions (H x W x D) (Depth includes rear door extender)	67 x 23.6 x 41.5 in (170 x 60 x 105.4 cm)	79 x 23.6 x 41.5 in (200 x 60 x 105.4 cm)
	Shipping Dimensions	73 x 36 x 48 in (185.5 x 91.5 x 122 cm)	85 x 36 x 48 in (216 x 91.5 x 122 cm)
	Weight	Configuration dependent	Configuration dependent
	Shipping Weight	Nominal: 946 lb (430 kg)	Nominal: 1,056 lb (550 kg)
		Maximum: 1,375 lb (625 kg)	Maximum: 1,408 lb (640 kg)

System Unit	**Environmental Temperature**	Operating (Tower, Rackmount)	50° to 95° F (10° to 35° C)
		Non-operating	Not tested
		Storage (60 days)	–40° to –151° F (–40 to –66° C)
		Rate of change	20° F/hr (11° C/hr)

	NOTE: Maximum operating temperature at sea level; reduce by 1.8° F (1° C) for each 600m (2,000 ft) above sea level.		
Humidity	Operating	20% to 80%	
	Non-operating	20% to 80%	
	Storage (60 days)	10% to 95%	
	Rate of change	20% hr	
Maximum Wet Bulb Temperature	Operating	82° F (28° C)	
	Storage (60 days)	115° F(46° C)	
Maximum Dew Point Temperature	Operating	36° F (2° C)	
Heat Dissipation	Tower	Nominal	550W, 1,878 BTU/hr
		Maximum	780W, 2,664 BTU/hr
	H9A10/H9A15 Cabinets	Configuration dependent	
Air Flow and Quality	Intake location	Front	
	Exhaust location	Rear Tower, Pedestal, Rack; Rear/top H9A10/H9A15	
	Particle size	N/A	
	Concentration	N/A	
Altitude (unpressurized)	Operating	10,000 ft (3,037m)	
	Non-operating	40,000 ft (12,192m)	
	NOTE: Higher altitudes are possible if maximum operating temperature is reduced (see Temperature); other restrictions may apply such as maximum permissible altitude for hard drives.		

Acoustics (Declared values per ISO 9296 and ISO 7779)

Acoustics		LWAd3B	LnAm5dBA (bystander position)
	Idle	5.8	44
	Operating	6.3	49
	NOTE: Current values for specific configurations are available from HP, note that 1 B = 10 dBA.		
Vibration	Operating	10 to 500 Hz .1 G peak	
	Non-operating	1.03 Grms 5-300 Hz	

Electrical (Power supplies are universal, PFC, auto ranging, 100/240 VAC)

Nominal Voltage (VAC)	100	120	200 to 240	
Voltage Range (VAC) (temporary condition)	90 to 100	110 to 128	180-250	
Power Source Phase	Single	Single	Single	
Nominal Frequency (Hz)	50/60	50/60	50/60	
Frequency Range (Hz)	49 to 51/59 to 61	49 to 51/59 to 61	49 to 51/59 to 61	
RMS Current				
Pedestal and Rackmount	Single power cord	7.5A	6.0A	3.8A
	Maximum VA	780	765	730

M-Series Cabinet (Configuration dependent)	Nominal voltage (VAC)	100	120	220-240
	Each power cord	24A	24A	16A
Power Cords				
Pedestal	1 (75 in (190 cm))	IEC 320 C13 to NEMA 5-15 (North America) or IEC 320 C13 to country-specific		
Rackmount	1 (14 ft 10 in (452 cm))	IEC 320 C13 to NEMA 5-15 (North America) or IEC 320 C13 to IEC 320 C14 (other countries)		
Cabinet	2 (10 ft 10 in (330 cm))	120V non-removable NEMA L5-30P or 200-240V non-removable IEC 309		
Regulatory	Agency Approvals	UL: Listed to UL1950 (3rd edition)		
		CSA: Certified to CAN/CSA-C22.2 No. 950-M95		
		TUV: EN 60950/A4: 1997 VDE 0805 GS marked		
		FCC: Part 15.B Class A (EV6 500 MHz)		
		FCC: Part 15.B Class B (EV67 667 MHz)		
		CE: EN55022, EN50082		
		VCCI Class II ITE		
		BCIQ: CISPR22, CNS13438		
		C-Tick: CISPR22, AS/NZS 3548		
	Reviewed to	AS/NZ 3260:1993 Australian/New Zealand Standard		
		EN 60950/A4: 1997 European Norm		
		IEC 950 (2nd edition, 4th amend)		

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